REMARKS

The Official Action of January 28, 2008, has been carefully reviewed. The claims remaining in the application are now only elected claims 12 and 14-18, the non-elected claims having been deleted without prejudice to applicants' rights under Sections 121, 120 and 119. Applicants' claims define patentable subject matter and should be allowed, and such is respectfully requested.

The examiner has noted an error in the specification and has required correction. Applicants respectfully request that the requirement be held in abeyance pending the finding of allowable subject matter.

Claims 12-18 have been rejected under Section 103 as obvious from Mikkola in view of Tench. The rejection is respectfully traversed.

The present invention as recited in amended claim 12 relates to a plating method forming a plating film on a conductor layer, which is formed on at least a part of a structural object having a concave-convex pattern on a semiconductor substrate, comprising providing a cathode potential to the conductor layer and supplying a plating solution which electrically connects an anode with the conductor layer, wherein the plating solution contains 25-75

g/l of copper ion and 0.4 mol/l of an organic acid or inorganic acid and an electric resistor is installed between the conductor layer and the anode, and the plating is carried out at an electrical conductivity of 3 S/m or less.

In the plating method of the present invention, excellent and superior in-plane uniformity of the plated film formed on the conductive layer can be achieved by using plating conditions of electrical conductivity of 3 S/m or less. This effect is shown in Examples 4 and 5.

The present specification shows that the electrical conductivity at the time of plating varies according to the porosity and pore size of the electric resistor inserted (Figures 1 and 2), that the electrical conductivity of the copper plating solution with a concentration in the range used in the present invention must be 3 S/m or less when an electric resistor is not inserted (Figure 7), and that the center thickness drop ratio is unduly increased when the electrical conductivity of the copper plating solution is high (Figure 8).

Mikkola describes a method of inserting a porous membrane between a conductor layer and an anode in plating using a copper plating solution equivalent to that used in the present invention. Tench, which employs a plating method similar to that used in Mikkola, discloses use of an ion

conducting membrane or a porous insulating material (e.g., plastic, glass or ceramic frit) as a solution barrier. However, Mikkola and Tench merely disclose use of a porous membrane in plating, and do not disclose the relationship between porosity or the pore size of the porous membrane and electric conductivity of the plating solution.

From these disclosures of the citations, it is impossible to select an electric resistor which reduces the electric conductivity to 3 S/m or less during plating. Neither Mikkola nor Tench discloses or suggests plating under the conditions of electrical conductivity of 3 S/m or less, or the excellent effect of in-plane uniformity of plated film formed on a conductive layer when plating is carried out at electrical conductivity of 3 S/m or less.

Applicants believe and respectfully submit that the person having ordinary skill in the art, considering these documents as of the time the present invention was made, would not have come up with the conditions of plating at electrical conductivity of 3 S/m or less in order to achieve the advantages of the present invention, in particular to achieve the excellent effect of in-plane uniformity of the plated film formed on a conductive layer when plating is carried out at an electrical conductivity of 3 S/m or less.

Withdrawal of the rejection is in order and is respectfully requested.

Respectfully submitted,

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